

An aerial view of a city skyline at sunset, with a network diagram overlay consisting of glowing white arcs and nodes connecting various points across the city.

# FirstNet Solution

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FirstNet Principal Consultant



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# WHAT IS FIRSTNET?

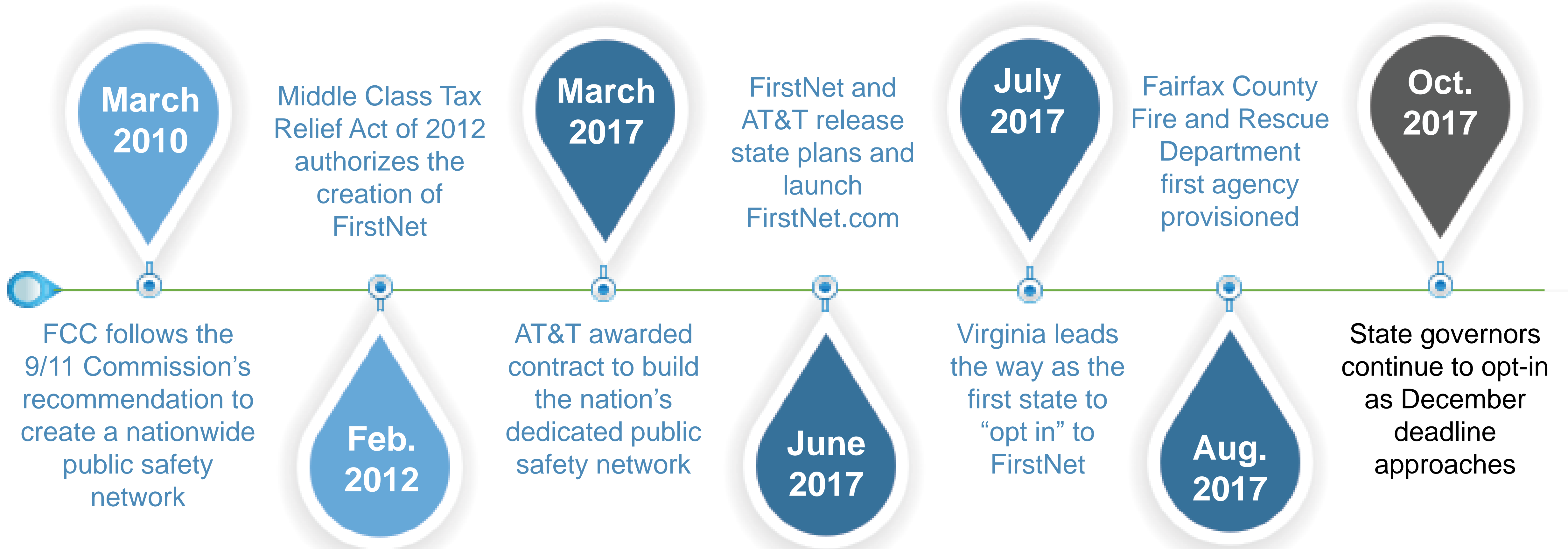
## **Built for Public Safety, By Public Safety**

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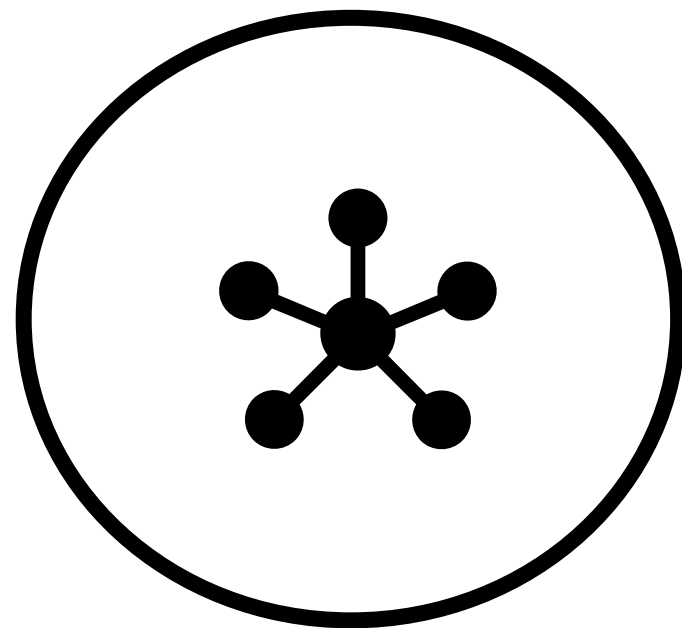
**The Middle Class Tax Relief and Job Creation Act of 2012 created the First Responder Network Authority (FirstNet) as an independent authority within the National Telecommunications and Information Administration (NTIA) to provide emergency responders with the first nationwide, high-speed, broadband network dedicated to public safety**

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# History in the Making – FirstNet

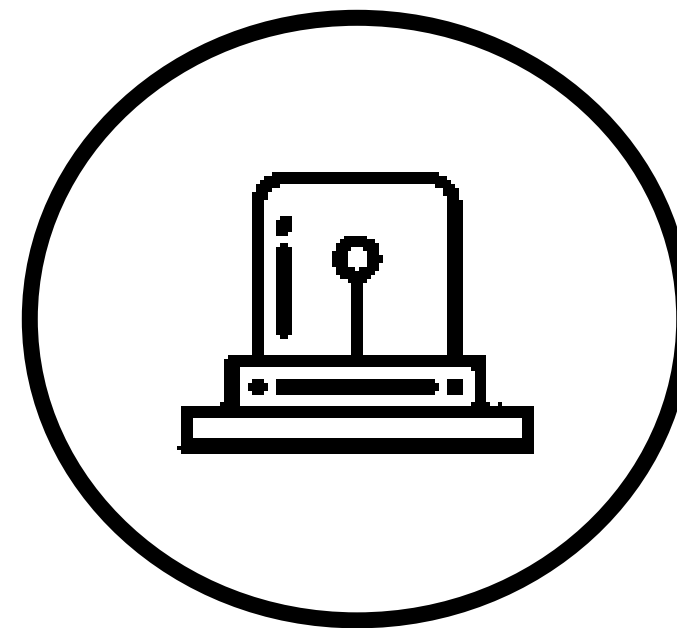


# FIRSTNET NETWORK – CORE, TRANSPORT BACKHAUL, RAN



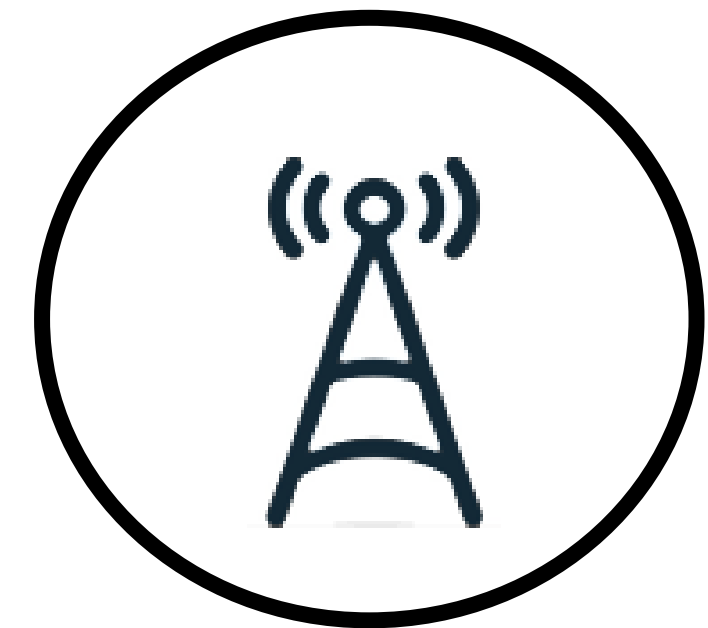
## CORE NETWORK

- Six primary functions: switches data, processes information, reformats information, stores data, maintains data and keeps it secure
- Core covers all of United States and is connected to radio access networks in each state via the backhaul layer of the network



## TRANSPORT BACKHAUL

- These are the links that carry user traffic, such as voice, data, video, and signaling from the radio base stations to the core network



## RADIO ACCESS NETWORK

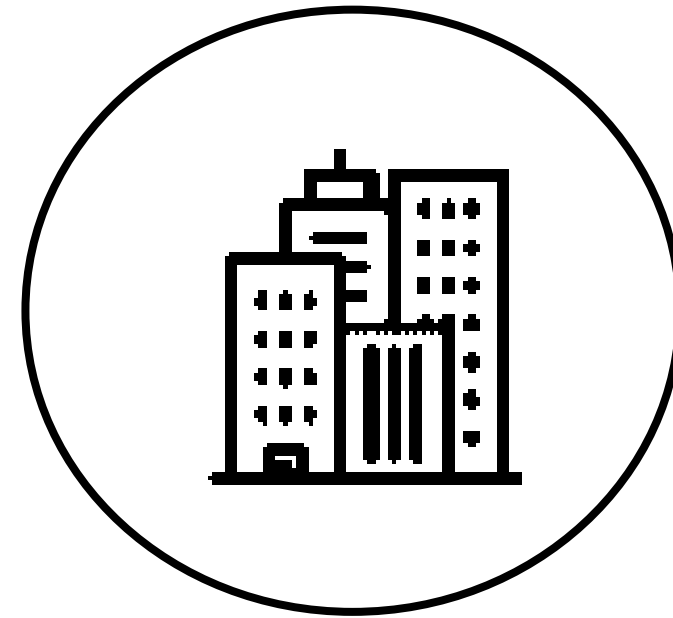
- Consists of the radio base station infrastructure that connects to user devices
- Includes cell towers and mobile hotspots embedded in vehicles that backhaul to the core network over satellite or other types of wireless infrastructure

# FIRSTNET SOLUTION OVERVIEW



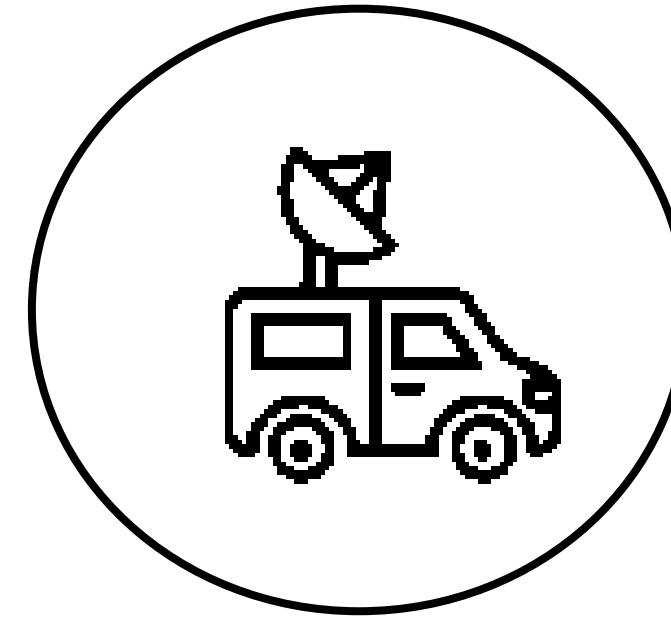
## COVERAGE

- Reaches over 99% of US population
- 40,000 Wi-Fi hotspots
- Satellite and deployable coverage 99%+



## IN-BUILDING SOLUTIONS

- Access to more than 6,000 existing AT&T in-building assets including stadiums and transportation facilities



## DEPLOYABLES

- Hundreds of AT&T units for daily network maintenance
- 72 deployables for FirstNet customer requests



## SERVICE PLANS & PROCUREMENT

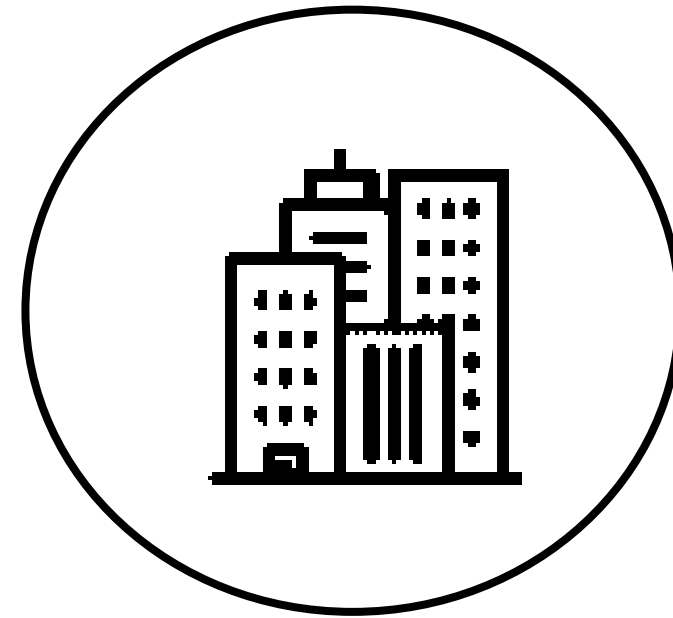
- Competitive and compelling rate plans
- Purchase through a variety of contract vehicles

# FIRSTNET SOLUTION OVERVIEW



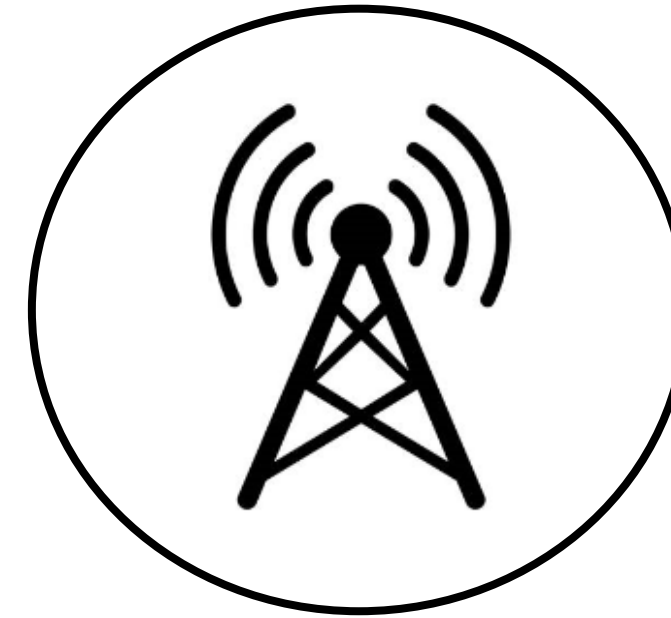
## DEVICES & BYOD

- Any AT&T LTE device can be a FirstNet device
- Wide choices, aggressive pricing



## BASIC & FUTURE SERVICES

- Includes voice, data and messaging features of commercial networks
- Future roadmap for Mission Critical services



## PRIORITY & PREEMPTION

- Priority and Preemption on Band 14 + existing AT&T LTE bands
- Multiple priority levels within agencies

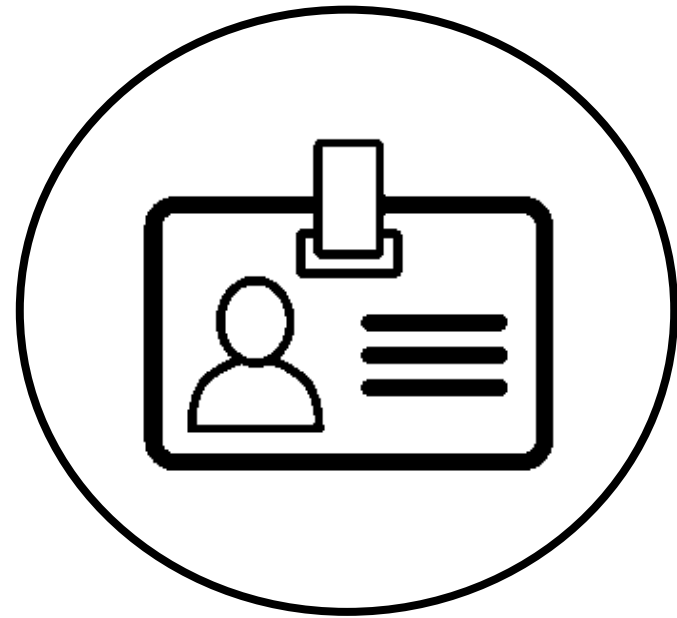


## CYBERSECURITY

- Security Operations Center for FirstNet
- Uses AT&T's global cybersecurity assets



# FIRSTNET SOLUTION OVERVIEW



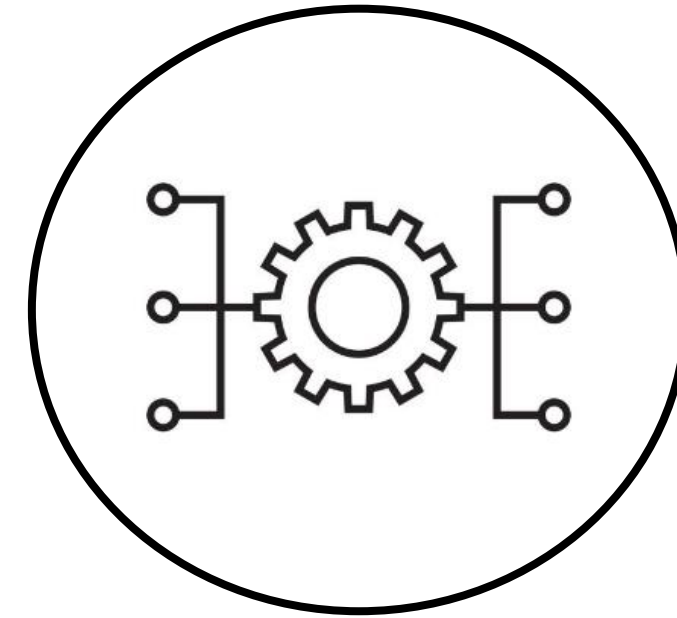
## ICAM

- Single Sign-On capability across all FirstNet applications plus agency applications



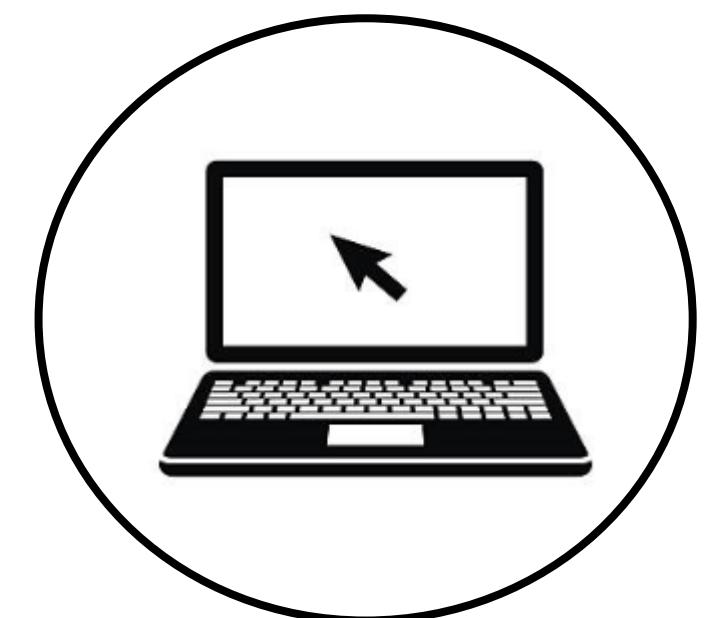
## FIRSTNET APP STORE

- Shows only security audited apps from trusted vendors
- Can integrate with agency MDM/MAM



## LOCAL CONTROL

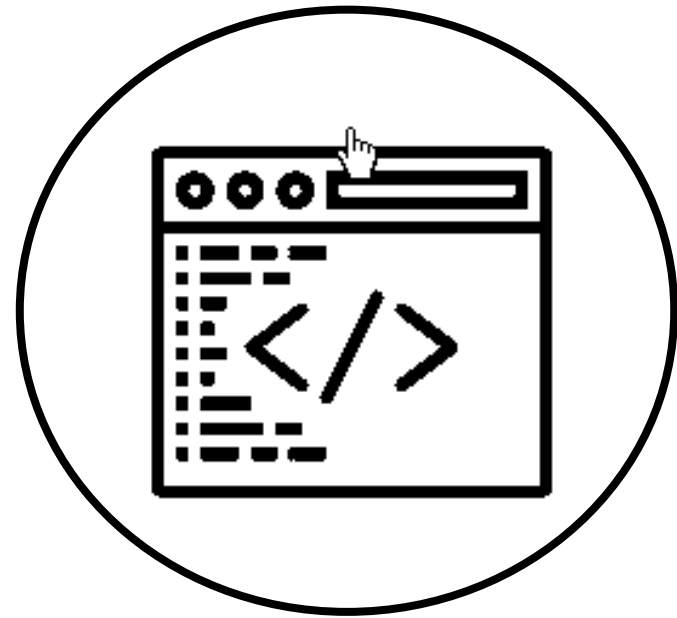
- One stop web tool for managing user rate plans, priority levels, PTT groups, ICAM authorizations and more



## PUBLIC SAFETY HOME PAGE

- Unprecedented visibility into network status and more

# FIRSTNET SOLUTION OVERVIEW



## APP DEVELOPER PROGRAM

- Foster innovation and interoperability in public safety mobile apps
- APIs for FirstNet specific features



## SOLUTIONS

- First-party options for key services like PTT, mobile VPN, messaging, LBS and more
- Or bring your own apps



## TRAINING

- Public safety solution specialists to educate agencies on how to maximize their use of FirstNet services



## SUPPORT

- Dedicated 24 x 7 x 365 FirstNet mobility customer care

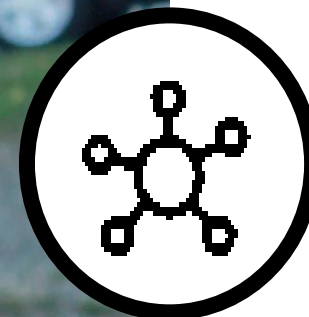


# HIGHLY SECURE FOR PUBLIC SAFETY



## FirstNet's Dedicated Security Team

- Operations, engineering, strategy and planning
- U.S. based support



## Dedicated Network Core

- End-to-end encryption
- PSE Network security



## Application Security

- FirstNet Application Store
- Management and Oversight

*Security by Design to Support the Mission of Public Safety*



# USER TYPES – DEFINING PRIORITY LEVELS



## Primary Users

Fire  
Law Enforcement  
Rescue / EMS  
Emergency Management

## Extended Primary Users

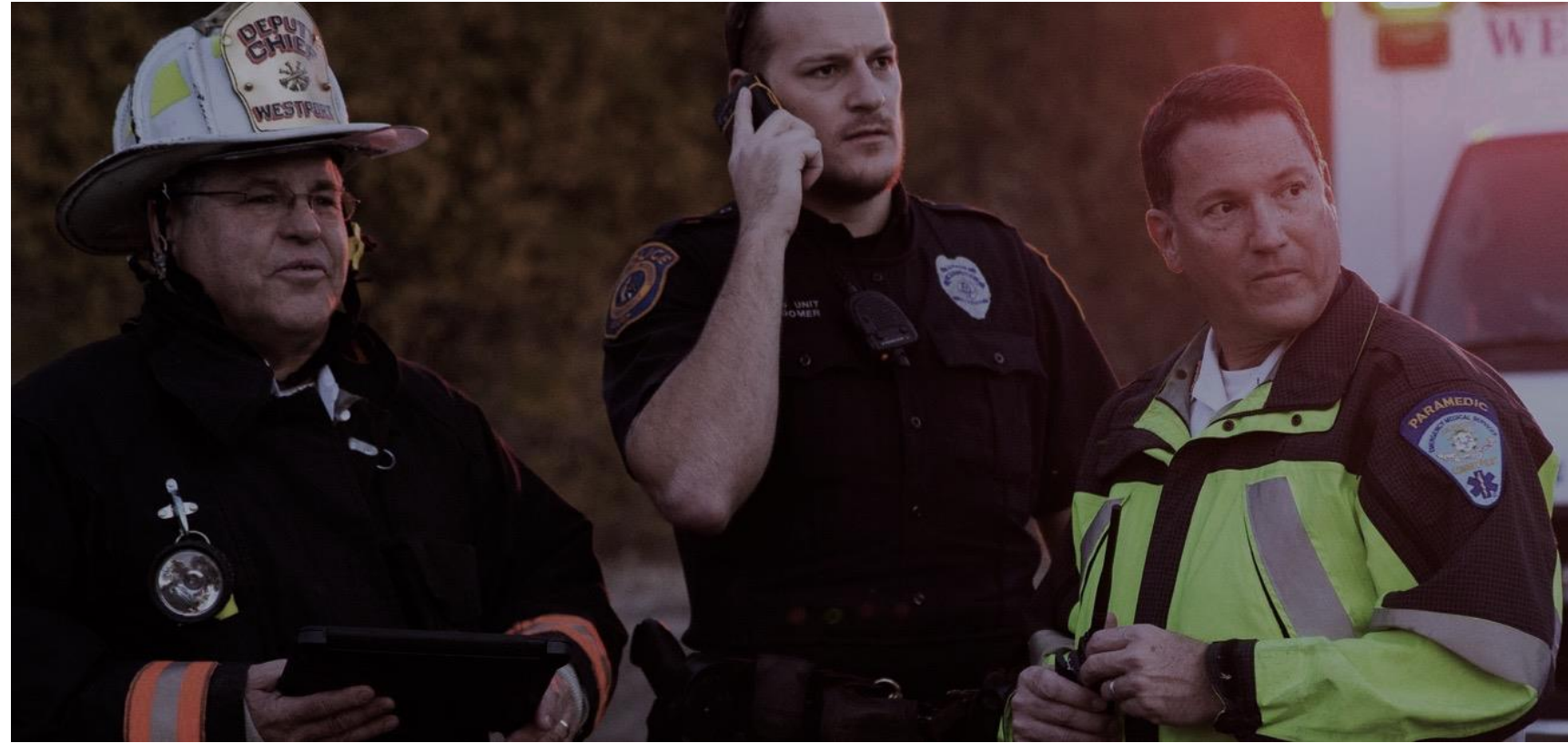
Hospitals  
Utilities  
Transportation  
Public Works

## Volunteer Users

Volunteers for a primary agency, but  
maintains service responsibility  
Volunteer Fire Fighter  
Auxiliary Police



# PRIMARY VS. EXTENDED PRIMARY



## PRIMARY USER

- Dedicated FirstNet Core
- FirstNet SIM
- QoS, Priority, Preemption
- Priority Levels
- Incident Command
- Uplift
- End to End Security and Encryption
- FirstNet Rate Plans
- Dedicated Customer Care 24/7/365
- Application Store



## EXTENDED PRIMARY USER

- Dedicated FirstNet Core
- FirstNet SIM
- QoS
- Priority (optional)
- Uplift
- End to End Security and Encryption
- FirstNet Rate Plans
- Dedicated Customer Care 24/7/365
- Application Store



# WHAT IS QPP, AND WHY DOES PUBLIC SAFETY NEED IT?

## QPP : QoS – Priority - Preemption

- Quality of Service (QoS): establishes min/max service quality parameters
- Priority: Gives users preferred access to network resources
- Preemption: Terminates or relocates lower priority users to provide primary users with access





# > Priority and Preemption

NORMAL OPERATIONS



PRIMARY



EXTENDED  
PRIMARY



COMMERCIAL



RUTHLESS PREEMPTION PARKWAY ●



PRIORITY LEVEL



PRIORITY LANE ●

> Priority and Preemption

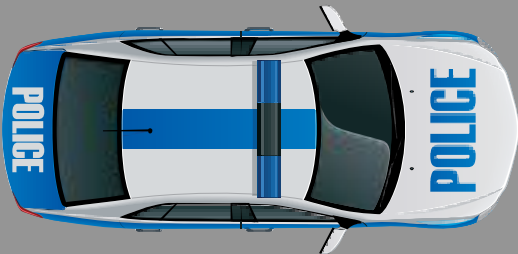
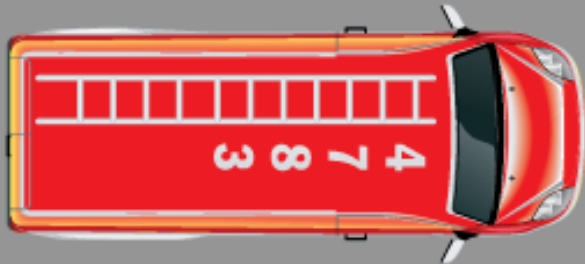


CRISIS OCCURS

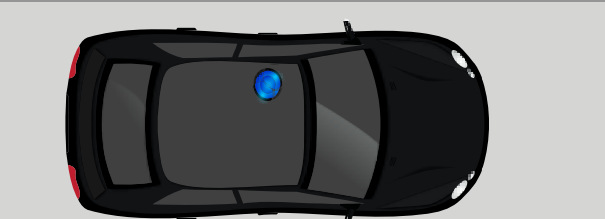


RUTHLESS PREEMPTION PARKWAY ●

PRIMARY



EXTENDED  
PRIMARY



PRIORITY LEVEL

COMMERCIAL TRAFFIC

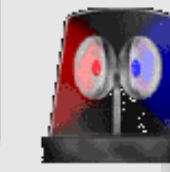
COMMERCIAL



PRIORITY LANE ●



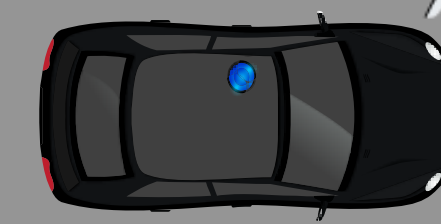
# > Priority and Preemption



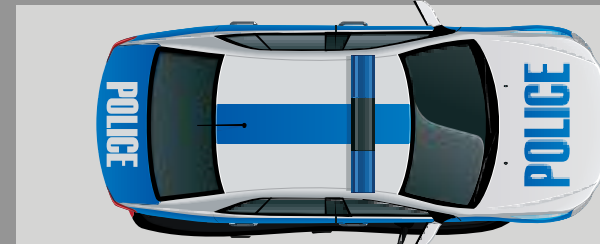
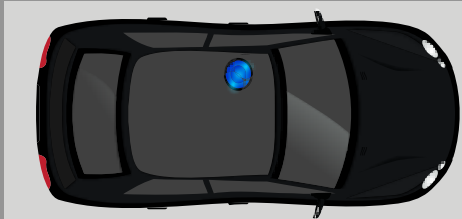
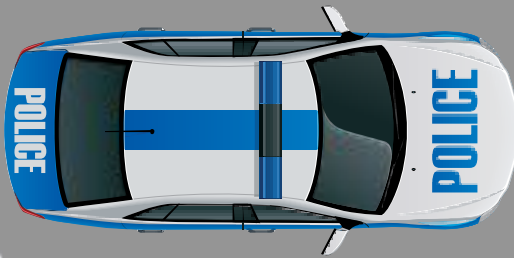
CRISIS WORSENS



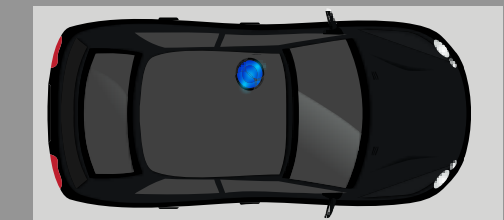
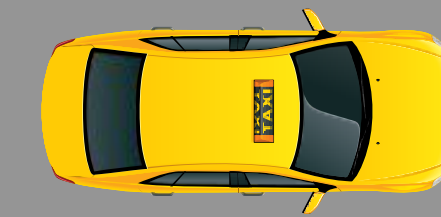
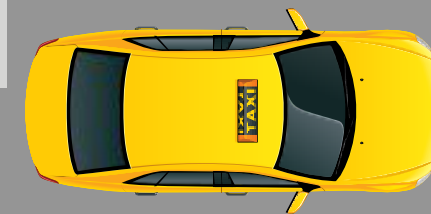
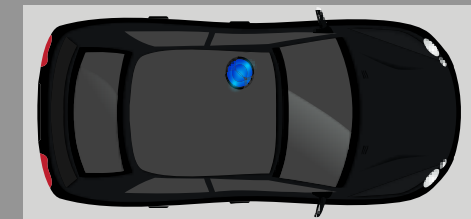
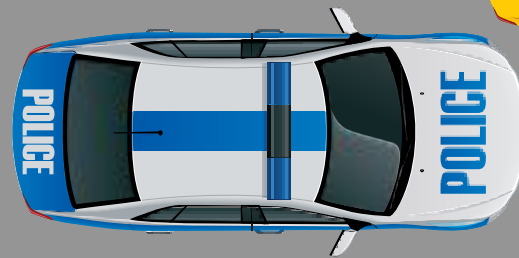
PRIMARY



PRIMARY



EXTENDED  
PRIMARY



PRIORITY LANE

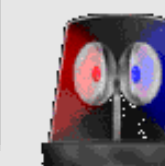


PRIORITY LEVEL





# > Priority and Preemption



CRISIS WORSENS



PRIMARY

PRIMARY

PRIMARY

RUTHLESS PREEMPTION PARKWAY ●



PRIORITY  
LEVEL



PRIORITY LANE ●



PRIORITY  
LEVEL



COMMERCIAL ROAD ●





# FIRSTNET WORLD-CLASS DEVICE ECOSYSTEM

## SMARTPHONES



Apple iPhone (iOS)  
Samsung (Android)  
LG (Android)  
Kyocera Duraforce  
(Android rugged)

## FEATURE PHONE



Sonim XP5 (rugged)  
Kyocera Dura  
(rugged)  
LG X Venture  
(rugged)

## TABLETS



Apple iPad  
Samsung Galaxy  
LG G Pad  
Microsoft Surface

## DATA ONLY



Netgear Unite Hotspot (rugged)  
ZTE USB Aircards  
ZTE Hotspot  
AT&T Home Base (router)

## WEARABLES



Apple Watch  
LG Watch  
Samsung Gear



# SPECIALTY DEVICES CERTIFIED TO MEET UNIQUE NEEDS OF PUBLIC SAFETY

## TRUNK MOUNTED MODEM



Cradlepoint IBR1100 (Band 14 Class)

Enables connectivity to a wide variety of connected devices

## IoT CONNECTIVITY



Cisco 819 4G LTE M2M Router

Connects and enables smart devices

## RUGGEDIZED TABLETS & LAPTOPS



Panasonic Toughbook CF-53

Highly Secure in-vehicle access to critical applications and services

## PTT DEVICES & ACCESSORIES



Sonim XP7

Efficient wireless connectivity to existing LMR Radio systems



# LMR INTEROPERABILITY



## Extended Coverage

EPTT available nationwide on AT&T 3G/4G/LTE and Wi-Fi networks



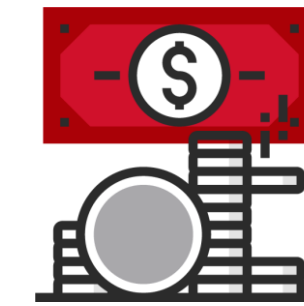
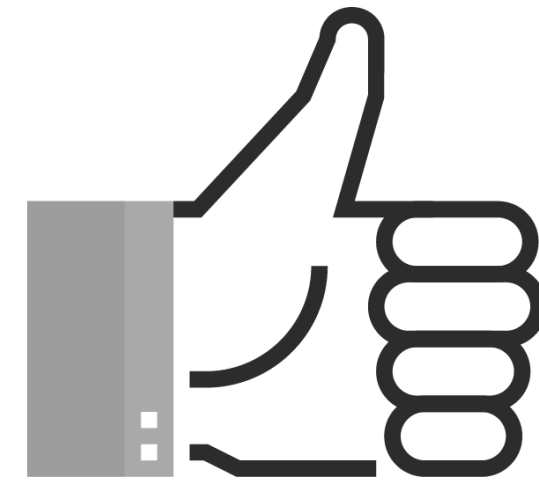
## Data Apps

Access AT&T data apps and LMR EPTT on the same device that a user already uses



## Expanded Capacity

Give EPTT to new users that don't have to carry radios while maintaining full communication



## Lower Cost

Extend, expand and enhance LMR network without cost to add frequencies, sites, radios



## Shared Responsibility

AT&T has end-to-end responsibility for EPTT users/service

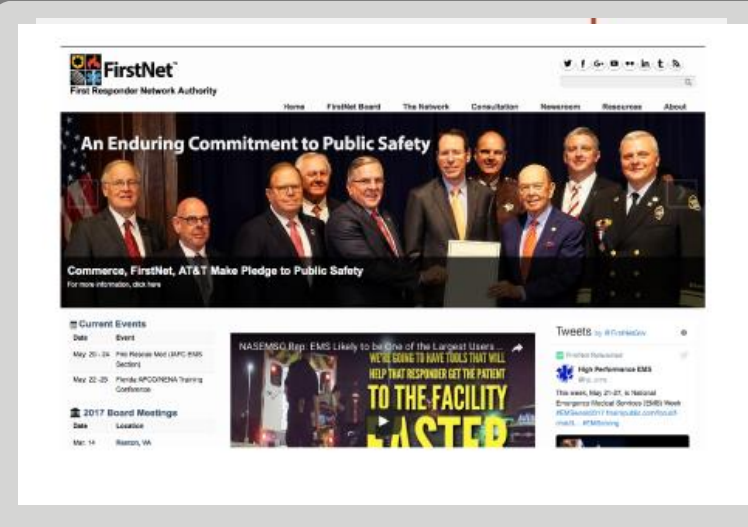


## Admin Tools

Automated tools for user administration and software updates



# PUBLIC FIRSTNET SITES



FirstNet.gov

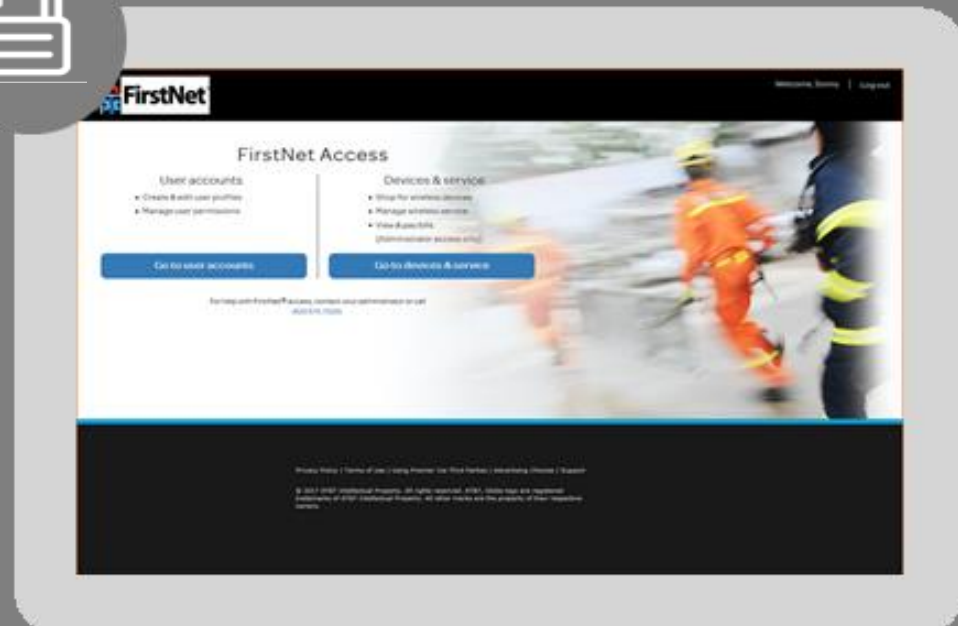


FirstNet.com

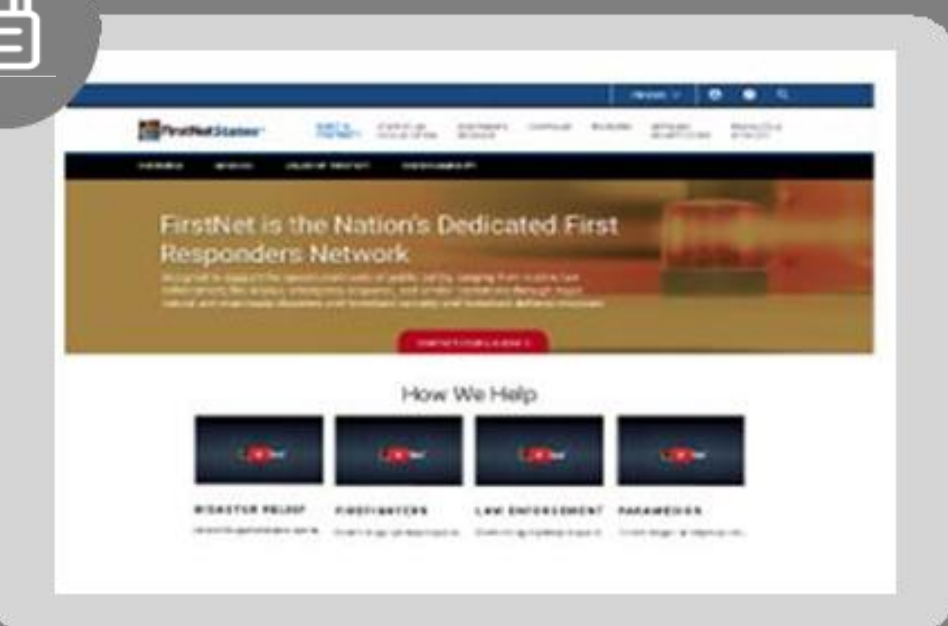


Developer Portal

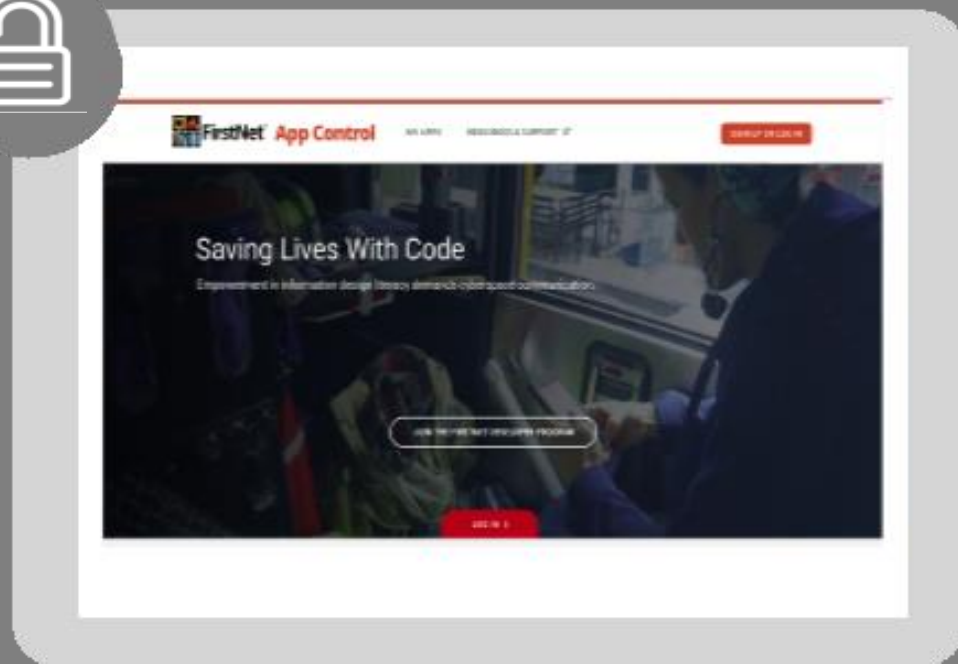
# SECURE FIRSTNET SITES



Public Safety Home Page



State Plan Portal



App Developer Portal

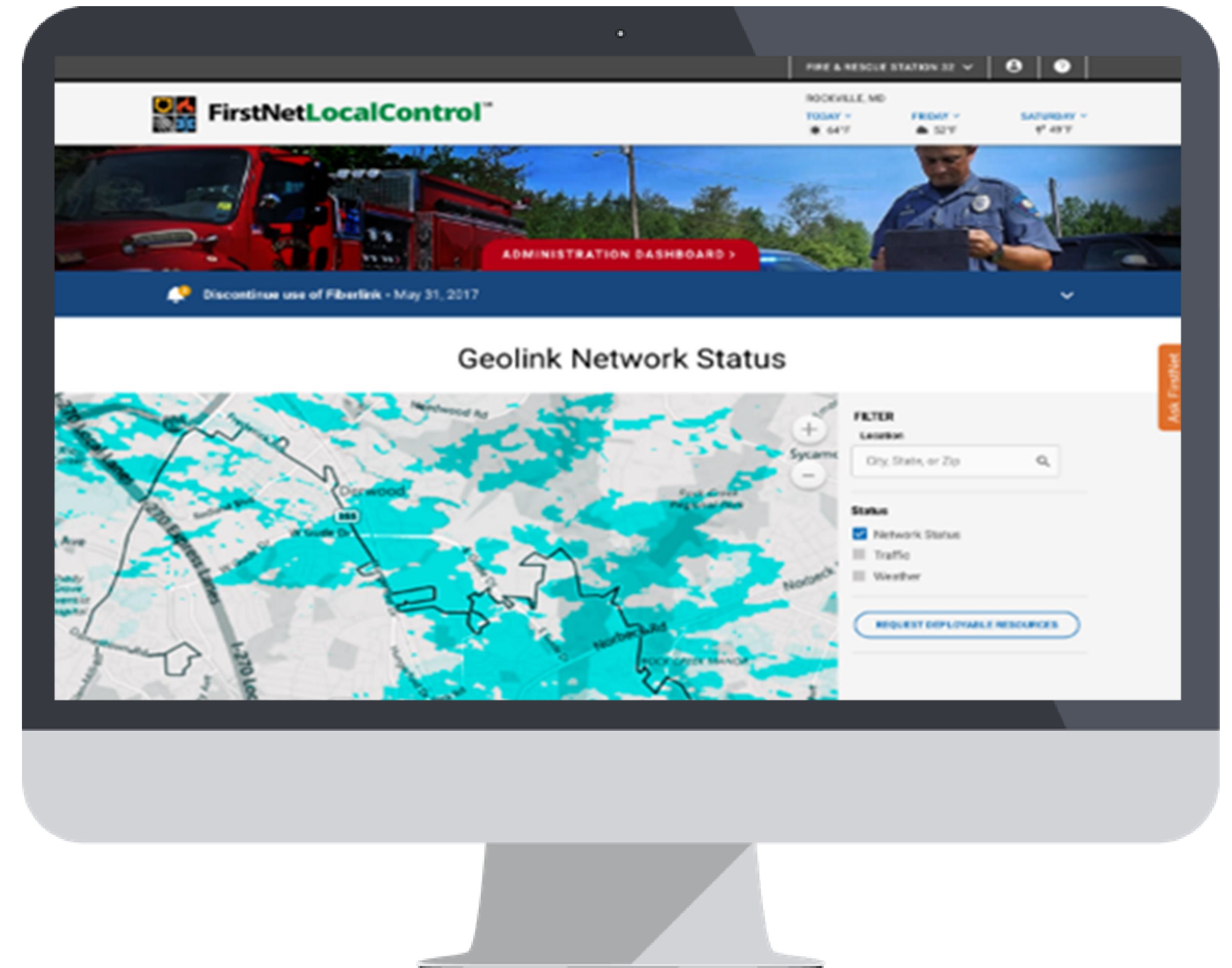


Application Store



# LOCAL CONTROL / DEVICE MANAGEMENT

- Ability to monitor the Network in real time, including site locations and service level conditions
- Provides real time Situational Awareness
- Ability to create trouble tickets directly from the “Local Control” portal
- Ability to enable and disable agency owned devices locally
- Secure site with required login credentials





# AT&T NETWORK DISASTER RECOVERY PROGRAM

- ✓ No Cost to Public Safety for approved incident response
- ✓ Staffed and Available 24/7 – full time dedicated personnel
- ✓ Existing expertise with documented processes
- ✓ \$600M Investment
- ✓ 300+ Vehicles



Full - SatCOLT



Mid - SatCOLT



Mini - SatCOLT



# DEPLOYABLE ASSETS AVAILABLE TO PUBLIC SAFETY

**Existing  
Assets**

**120+**

**LTE Deployables**

**Dedicated Public  
Safety Assets**

**72**

**FirstNet dedicated SatCOLTs**

**California  
Assets**

**6**

**FirstNet SatCOLTs**

**\*Potential to Use Your Own Entity Assets**





# FIRSTNET IN ARIZONA



# THE FIRSTNET DIFFERENCE



## COMMITMENT

- Unique, purpose-made solutions, solely for public safety community
- 25-year contract
- \$40B investment into FirstNet network by AT&T
- A single nationwide, interoperable, broadband network with priority and preemption 24/7
- Expected to create 10K U.S. jobs over the next 2 years



## ACCOUNTABILITY

- AT&T is bound by contract to deliver unique services for public safety's dedicated use
- Stiff penalties if AT&T fails to meet its commitment
- Unprecedented transparency into the network performance at the local level



## SECURITY

- Dedicated core with end-to-end LTE network encryption
- U.S. based FirstNet security operations center and dedicated 24x7x365 support
- A dedicated team of experts who monitor the network and keep your vital apps, devices and connections secure



## INNOVATION

- Open, inclusive ecosystem to serve as the backbone of public safety communications
- Contractually mandated roadmap includes:
  - Mission critical push-to-talk
  - Voice, data, text, and video
  - Broadcast technology and z-Axis location based services

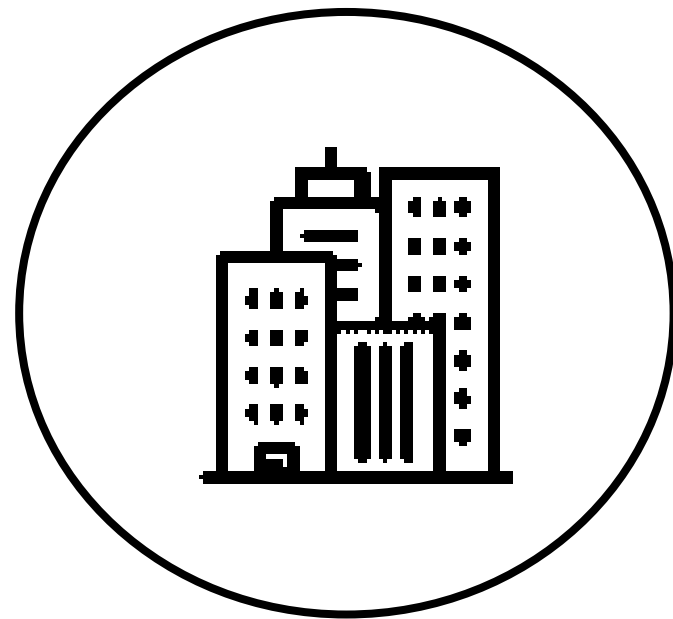


## AGILITY

- 72 FirstNet dedicated deployables
- Only company to receive the Private Sector Preparedness Program Certification from DHS



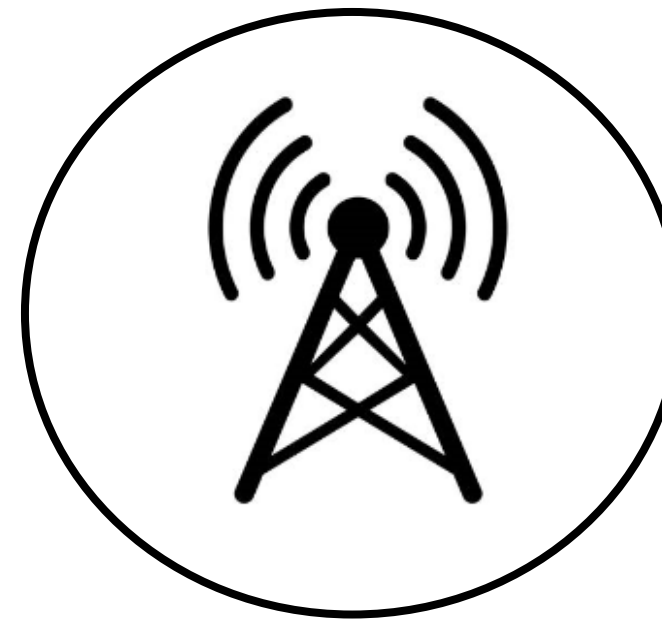
# FIRSTNET IN CALIFORNIA



## COMMERCIAL NETWORK

Priority  
Preemption  
Local Control  
FirstNet Rate Plans  
Dedicated Customer Care  
Application Store

**Available NOW**



## FIRSTNET CORE NETWORK

Dedicated FirstNet Core  
FirstNet SIM  
QoS, Priority, Preemption  
Priority Levels  
Incident Command  
Uplift  
End to End  
Security and Encryption

**April 1, 2018**



## BAND 14 / BUILDOUT

Band 14 Devices  
IOC/FOC 5 Year Build Plan  
Network Band 14  
Broadcast  
6 Dedicated SatCOLTs

**CA 5 Year Build Plan**





# BUILDOUT PLAN





# NEXT STEPS





**FIRSTNET™**

**Built with AT&T**